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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,135	07/31/2006	Young-Nam Kim	5038-061693	3852

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EXAMINER	
SCHLIENTZ, NATHAN W	
ART UNIT	PAPER NUMBER
1616	

MAIL DATE	DELIVERY MODE
12/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,135	KIM, YOUNG-NAM	
	Examiner	Art Unit	
	Nathan W. Schlientz	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-34,37-39,41 and 42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-34,37-39,41 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 September 2009 has been entered.

Status of Claims

Claims 31-34, 37-39, 41 and 42 are pending in the present application and are examined herein on the merits for patentability.

Withdrawn Rejections

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 31-34, 37-39, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Hack et al. (US 6,113,746) and Hack et al. (US 6,264,801), the disclosure of which is the same as US 6,113,746.

Hack et al. disclose a method for modulating the magnetic properties of a material comprising applying to said material sparks of sufficiently high voltage to effect said modulation of said magnetic properties, wherein said method enhances the paramagnetic properties of said material, wherein said material is selected from the group consisting of silver (claim 12). During spark processing, very high temperatures are produced and extremely rapid quenching is achieved. A person skilled in the art, having the benefit of the instant disclosure, will appreciate that other processing techniques, which create the same relevant conditions as those created by spark processing, can be used according to the subject invention. For example, laser

treatment of materials to achieve flash evaporation and rapid quenching can also be used according to the subject invention (col. 3, ln. 23-40).

Hack et al. disclose that during spark processing, an anode tip can be separated from a cathode substrate and a high voltage applied. This causes a spark to be generated between the anode tip and the cathode material. The electric field forces electrons from the cathode material and ionizes gas molecules on their way to the anode creating a plasma channel. Very high temperatures can be generated in this process, on the order of 30,000 K within about 10^{-7} seconds. The gas ions then accelerate toward the cathode. When the gas ions impact the cathode they have sufficient energy to evaporate a certain volume of the cathode material in a flash evaporation. In the off time of the spark event the vaporized material rapidly quenches and forms a highly disordered material. The high temperatures, i.e., on the order of 30,000 K, and rapid quenching achieved with this process results in small magnetic domains in the magnetically altered material (col. 4, ln. 19-44).

Hack et al. further disclose that silicon crystallites produced by the spark processing may range from about 3 to about 125 nm in diameter (col. 4, ln. 53-55).

Hack et al. do not specifically disclose that the silver produced by the spark processing method has paramagnetism at an absolute temperature of 20K or higher and a positive mass magnetization in an external magnetic field, H, of 4,000 Oe or greater and has a coercive force of 5 Gauss or less. However, the instant specification states that "the method of manufacture of the paramagnetic gold or silver powder according to the present invention is comprised of the steps of: 1) generation of argon

plasma having an *absolute temperature of 4,000 to 200,000 K* by using an RF power amplifier of 13.56 MHz and 5 to 50 kW and an inductive coupled plasma torch in a vacuum reaction tube; 2) production of gold or silver metal plasma by reacting argon plasma generated in the above and diamagnetic gold or silver powder; and 3) manufacture of paramagnetic gold or silver powder by *cooling rapidly* the gold or silver metal plasma gas thus produced below a room temperature under a vacuum in a nano powder collection equipment installed at the lower end of a plasma reaction furnace." (pg. 11, ln. 19 to pg. 12, ln. 5). The process of Hack et al. creates a temperature on the order of 30,000K followed by rapid quenching/cooling. Therefore, in the absence of evidence to the contrary, Hack et al. inherently produce silver powder with the same physical properties as instantly claimed.

2. Claims 31-34, 37-39, 41 and 42 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Cui et al. (US 2004/0219361).

Cui et al. disclose super-paramagnetic composite particles with a core/shell structure having silver as the shell deposited to coat the magnetic particle by chemical reduction, and wherein the particles have an average diameter of 0.05-50 μm (Abstract).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

3. Claims 31-34, 37-39, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by John et al. (US 2003/0025102), as evidenced by Nam et al. (Physica Status Solidi. A. Applied Research, 2004).

John et al. disclose dry blending high purity iron powder and nickel-zinc ferrite powder to prepare magnetic sensitive particles, followed by dry blending silver powder to obtain doped magnetic sensitive particles (Working Example-I). Nam et al. disclose that nickel-zinc ferrite nanoparticles exhibit paramagnetic behavior, with higher magnetization and coercivity at low temperature below 100 K (pg. 1849, Conclusion). Therefore, the powder blend comprising silver powder is paramagnetic.

4. Claims 31-34, 37-39, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Zeng et al. (Chinese Physics Letters, 2000).

Zeng et al. disclose silver nanoparticles with different sizes have been prepared by microemulsion and have been surface-modified with $C_{12}H_{25}SH$, wherein the caped Ag nanoparticles exhibit some kinds of surface local paramagnetic sites (Abstract).

Regarding the claimed physical properties of the paramagnetic silver powders, the Office does not have the facilities for examining and comparing applicant's product with the product of the prior art in order to establish that the product of the prior art does not possess the same functional characteristics of the claimed product. Paramagnetism at absolute temperature of 20 K or higher, positive mass magnetization in an external magnetic field of 4,000 Oe or greater, and coercive force of 5 Gauss or less are descriptive and thus would be an inherent property of the claimed composition. In the

absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed products are functionally different than those taught by the prior art and to establish patentable differences. See *Ex parte Phillips*, 28 U.S.P.Q.2d 1302, 1303 (PTO Bd. Pat. App. & Int. 1993), *Ex parte Gray*, 10 USPQ2d 1922, 1923 (PTO Bd. Pat. App. & Int.) and *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 31-34, 37-39, 41 and 42 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10, 12, 13, 22, 24 and 25 of copending Application No. 11/821,796. Although the conflicting claims are not identical, they are not patentably distinct from each other because both

sets of claims are drawn to a composition comprising a paramagnetic silver powder having paramagnetism at absolute temperature of 20K or higher. The '796 application discloses that the silver nanoparticles having paramagnetic property were prepared according to Korean Patent Application No. 2004-68246, which is the same process as the instant application. Therefore, the paramagnetic silver according to the instant claims and the '796 application are prepared by the same process and must have the same physical and chemical properties.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is (571)272-9924. The examiner can normally be reached on 9:00 AM to 5:30 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/John Pak/
Primary Examiner, Art Unit 1616